

CLAIMS

1. A testing system for testing a plurality of optical transceivers to be tested, comprising:
 - a digital data analyzer, having a pulse pattern generator and an error detector, wherein the error detector can measure the bit error ratio for the receiving signals of the optical transceivers with multiple ports;
 - a standard optical transceiver, for transmitting a digital signal outputted by the pulse pattern generator with conversion as an optical signal;
 - an optical attenuator, for attenuating the optical signal transmitted by the standard optical transceiver;
 - a tree coupler, for sending the attenuated optical signal to the plurality of optical transceivers; and
 - an optical channel selector, for switching the plurality of optical transceivers one by one for receiving the optical signal converted from the digital signal to measure the power and waveform of the optical signal.
2. The testing system of claim 1, wherein the optical transceiver comprises a receiver and a transmitter.
3. The testing system of claim 1, wherein the digital data analyzer has a multiplex channel data bus, which can send the digital signals to the transmitters of the plurality of optical transceivers to be tested, and measure the bit error ratio for the receiving signals of the plurality of optical transceivers to be tested with multiple ports.
4. The testing system of claim 1, wherein the optical channel selector is to switch the optical signals transmitted by the plurality of optical transceivers to be tested one by one to a digital communication analyzer and an optical spectrum analyzer for finding out the parameter testing for each optical transceiver to be tested.
5. The testing system of claim 4, wherein the digital communication analyzer and the optical spectrum analyzer are configured at the signal output of the optical channel selector.
6. The testing system of claim 2, wherein the tree coupler has an input connected to the signal output of the optical attenuator, and an output connected to the receivers of the plurality of optical transceivers to be tested.
7. The testing system of claim 1, further comprising a wavelength division multiplex and a 2x2 optical switch for each optical transceiver to be tested, which is a bi-directional transceiver with one common optical terminal

for a transmitter and a receiver.

8. A testing system for testing a plurality of optical transceivers to be tested, each optical transceiver has a receiver and a transmitter, comprising:

a tree coupler, for sending a standard optical signal to the receivers of the plurality of optical transceivers;

an optical channel selector, for switching the plurality of optical transceivers to be tested one by one for receiving the optical signal converted from the digital signal to measure the power and waveform of the optical signal; and

a digital data analyzer, having a pulse pattern generator and an error detector, wherein the standard optical signals comprise the digital signals outputted from the pulse pattern generator, and the error detector can measure the bit error ratio for the receiving signals of the plurality of optical transceivers.

9. The testing system of claim 8, further comprising a wavelength division multiplex and a 2x2 optical switch for each optical transceiver to be tested, which is a bi-directional transceiver with one common optical terminal for a transmitter and a receiver.

10. The testing system of claim 8, wherein the digital data analyzer has a multiplex channel data bus, which can send the digital signals to the transmitters of the plurality of optical transceivers to be tested, and measure the bit error ratio for the receiving signals of the plurality of optical transceivers to be tested with multiple ports.

11. The testing system of claim 8, wherein the optical channel selector is to switch the optical signals transmitted by the plurality of optical transceivers to be tested one by one to a digital communication analyzer and an optical spectrum analyzer for finding out the parameter testing for each optical transceiver to be tested.

12. The testing system of claim 8, wherein the digital data analyzer with one channel is applied, two RF switches are installed on the interfaces of the pulse pattern generator and the error detector for switching a plurality of optical transceivers to be tested.

13. The testing system of claim 8, wherein the digital data analyzer with one channel is applied, a RF amplifier and RF splitter are installed on the interface of the pulse pattern generator for driving a digital signal to optical transceivers to be tested, and a RF switch is installed on the interface of the error detector.

14. A testing method for testing a plurality of optical transceivers to be tested, the method comprises at least the following steps:
- 5 using an optical channel selector for switching the optical signals converted by the plurality of optical transceivers one by one to measure the power and waveform of the optical signal; and
- using a tree coupler to send a standard optical signal to the receivers of the plurality of optical transceivers, and using an error detector to measure the bit error ratio for the receiving signals of the plurality of optical transceivers with multiple ports.
- 10 15. The testing method of claim 12, wherein the step of using the optical channel selector comprises: the optical channel selector switches the optical signals one by one to a digital communication analyzer and an optical spectrum analyzer for finding out the parameter testing for each optical transceiver to be tested.
- 15 16. The testing method of claim 12, wherein the step of using the tree coupler comprises: the digital signal outputted from a pulse pattern generator is converted into the standard optical signal through a standard optical transceiver.

20